

## Session 3: Impact on Industry

E M Mattiske

Mattiske Consulting Pty Ltd, PO Box 437, Kalamunda WA 6076

The assessment of the impact of plant diseases in ecosystems on industries in the south-western part of Australia are varied and depend on the type of organism, the ability of researchers to detect and identify the diseases, and the type of industry. The range of industries impacted by plant diseases include tourism, recreation, conservation, mining, water production, honey production, forestry and flora-based industries (such as medicinal plants and wildflower picking). The papers in this session concentrated on the plant diseases associated with the dieback caused by species of *Phytophthora*, the straw rots caused by *Armillaria luteobubalina*, canker and smut fungi, karri brown wood caused by a variety of fungi and a range of nursery pathogens. While the evidence mostly concerned species of *Phytophthora*, there is a growing awareness of the lack of knowledge on the many plant disease species which may occur in the south-west, which have not been identified or studied. Historically, plant diseases have not been investigated until their effects on the ecosystems have become easily detectable, and usually at this stage the plant disease is well established in the communities concerned. In many cases, the very presence of industry has fostered the research to define the problem and the potential management options for minimizing impacts and costs of these plant diseases.

The authors presented a range of data to illustrate the impact of these plant diseases on jarrah production, a range of mining operations, the flora-based industries, and recreational activities. The difficulties faced in determining the type and cost of the impact of plant diseases on the ecosystems are related in part to the underlying site factors (e.g. rainfall, geology, soils, topographical positions), the biology of species within the various ecosystems, and the type and location of the various industries. For example, in the case of mining, the operations of Alcoa of Australia and RGC Min-

erals Sands were discussed and despite the very diverse range of site conditions (e.g. Darling Ranges and Coastal Plain) there was common recognition of the impact of the species of *Phytophthora* on the operations. In these latter presentations, it was stressed that the impact was more than just financial, although this aspect was still evident from the presentations. Both companies recognise the potential threat of the plant diseases affecting the adjacent natural vegetation, the ability of establishing key plant species in rehabilitation sites, and achieving high species richness in these sites.

The potential impact of all plant diseases on these ecosystems is very difficult to determine as there is lack of taxonomic and basic research on the range of pathogens present in the environment. In fact, the effort of some of the commercial or licensed industries such as forestry and mining have assisted in defining and determining the impacts of the plant diseases in the south-western part of Australia. On the other hand, as Gillen and Napier discussed in their paper, the less controlled or un-licensed activities such as recreation and tourism in some ways pose greater threats to the ecosystems. The wider responsibilities and costs then return to the management authorities, the government departments and ultimately the Australian community to determine equitable rules to minimize the spread and intensification of the plant diseases. The latter is achieved primarily through management plans and operational activities (such as closing roads and quarantine measures). The costs associated with these less controlled activities is very difficult to determine as many cannot be determined without a substantial improvement in the understanding of the plant diseases, the ecosystems, the different site conditions and the diversity of activities concerned.

---

Symposium on Plant Diseases in Ecosystems:

Threats and impacts in south-western Australia.

Held on April 16, 1994, at Murdoch University, by the Royal Society of Western Australia and the Ecological Society of Australia.

© Royal Society of Western Australia 1994